

Universal Structural Foam

DATA SHEET 07.2011 - Replaces 08.2010

DESCRIPTION



AIREX® C70 is a closed cell, cross-linked polymer foam that combines excellent stiffness and strength to weight ratios with superior toughness.

It is non-friable, contains no CFC's, has negligible water absorption, and provides an excellent resistance to chemicals. The fine cell structure offers an excellent bonding surface.

Compatible with most resins and manufacturing processes **AIREX® C70** is ideally suited as a core material for a wide variety of sandwich structures subjected to both static and dynamic loads. Thanks to its unique lightness (properties vs. density) C70 is the material of choice for applications where lightweight is a priority.

CHARACTERISTICS

- Outstanding strength and stiffness to weight ratios
- Good impact strength
- Low resin absorption
- High fatigue resistance
- Good fire performance (self-extinguishing)
- High sound and thermal insulation
- Good styrene resistance

APPLICATIONS

- **Marine:** Hulls, decks, bulkheads, superstructures, interiors
- **Road and Rail:** Roof panels, interiors, floors, doors, partition walls, side skirts, front-ends
- **Wind energy:** Rotor blades, nacelles, turbine generator housings
- **Aircraft and Aerospace:** Interiors, radomes, galley carts, general aviation (fuselage and wing)
- **Recreation:** Skis, snowboards, surfboards, wakeboards, canoes, kayaks
- **Industrial:** Tooling, tanks, ductwork, containers, covers

PROCESSING

- Contact molding (hand/spray)
- Vacuum infusion
- Resin injection (RTM)
- Adhesive bonding
- Pre-preg processing
- Thermoforming

MECHANICAL PROPERTIES											
Typical properties for AIREX® C70		Unit (metric)	Value ¹⁾	C70.40	C70.48	C70.55	C70.75	C70.90	C70.130	C70.200	C70.250
Density	ISO 845	kg/m³	Average Typ. range	40	48 43 - 55	60 54 - 69	80 72 - 92	100 90 - 115	130 120 - 150	200 180 - 250	250 225 - 288
Compressive strength perpendicular to the plane	ISO 844	N/mm²	Average Minimum	0.45	0.60 0.50	0.90 0.75	1.45 1.10	2.0 1.7	3.0 2.6	5.2 4.5	6.6 5.3
Compressive modulus perpendicular to the plane	DIN 53421	N/mm²	Average Minimum	41	48 35	69 55	104 80	130 110	170 145	280 240	350 280
Tensile strength in the plane	ISO 527 1-2	N/mm²	Average Minimum	0.70	0.95 0.8	1.3 1.0	2.0 1.6	2.7 2.2	4.0 3.0	6.0 4.8	7.5 5.5
Tensile modulus in the plane	ISO 527 1-2	N/mm²	Average Minimum	28	35 28	45 35	66 50	84 65	115 95	175 140	230 160
Shear strength	ISO 1922	N/mm²	Average Minimum	0.45	0.55 0.50	0.85 0.70	1.2 1.0	1.7 1.4	2.4 2.1	3.5 3.2	4.7 3.8
Shear modulus	ASTM C393	N/mm²	Average Minimum	13	16 14	22 18	30 24	40 34	54 45	75 68	95 78
Shear elongation at break	ISO 1922	%	Average Minimum	8	10 8	16 10	18 10	23 12	30 20	30 20	30 20
Thermal conductivity at room temperature	ISO 8301	W/m.K	Average	0.031	0.031	0.031	0.033	0.035	0.039	0.048	0.056
Standard sheet	Width	mm ± 5		1330	1270	1150	1020	950	850	750	700
	Length	mm ± 5		2850 ²⁾	2730 ²⁾	2450 ²⁾	2180	2050	1900	1600	1500
	Thickness	mm ± 0.5		5 to 80	5 to 70	5 to 70	3 to 68	3 to 60	5 to 50	5 to 40	5 to 40
Color				light green	violet	yellow	green	red	blue	brown	green

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Minimum values acc. DNV definition; test sample thickness 20 mm except tensile properties (10 mm) and compressive modulus (40 mm)

²⁾ Half size plane sheets for thickness ≤ 8 mm

The data provided gives approximate values for the nominal density and DNV minimum values according to DNV type approval certificate.

The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.

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MECHANICAL PROPERTIES											
Typical properties for AIREX® C70		Unit (imperial)	Value ¹⁾	C70.40	C70.48	C70.55	C70.75	C70.90	C70.130	C70.200	C70.250
Density	ISO 845	lb/ft³	Average Typ. range	2.5	3.0 2.7 - 3.4	3.7 3.4 - 4.3	5.0 4.5 - 5.7	6.2 5.6 - 7.2	8.1 7.5 - 9.4	12.5 11.2 - 12.5	15.6 14 - 18
Compressive strength perpendicular to the plane	ISO 844	psi	Average Minimum	65	87 73	130 109	210 160	290 247	435 377	745 653	960 769
Compressive modulus perpendicular to the plane	DIN 53421	psi	Average Minimum	5'947	7'000 5'075	10'000 7'975	15'080 11'600	18'850 15'950	24'650 21'025	40'600 34'800	50'800 40'600
Tensile strength in the plane	ISO 527 1-2	psi	Average Minimum	100	138 116	190 145	290 232	390 319	580 435	870 696	1'090 798
Tensile modulus in the plane	ISO 527 1-2	psi	Average Minimum	4'060	5'100 4'060	6'530 5'075	9'600 7'250	12'200 9'425	16'680 13'775	25'400 20'300	33'400 23'200
Shear strength	ISO 1922	psi	Average Minimum	65	80 72.5	123 102	175 145	247 203	348 305	510 464	680 551
Shear modulus	ASTM C393	psi	Average Minimum	1'900	2'320 2'030	3'190 2'610	4'350 3'480	5'802 4'930	7'830 6'525	10'900 9'860	13'780 11'310
Shear elongation at break	ISO 1922	%	Average Minimum	8	10 8	16 10	18 10	23 12	30 20	30 20	30 20
Thermal conductivity at room temperature	ISO 8301	BTU.in/ft².hr.°F	Average	0.21	0.21	0.21	0.23	0.24	0.27	0.33	0.39
Standard sheet	Width	mm ± 5		1330	1270	1150	1020	950	850	750	700
	Length	mm ± 5		2850 ²⁾	2730 ²⁾	2450 ²⁾	2180	2050	1900	1600	1500
	Thickness	mm ± 0.5		5 to 80	5 to 70	5 to 70	3 to 68	3 to 60	5 to 50	5 to 40	5 to 40
Color				light green	violet	yellow	green	red	blue	brown	green

Finishing Options, other dimensions and closer tolerances upon request

¹⁾ Minimum values acc. DNV definition; test sample thickness 20 mm (¾") except tensile properties 10 mm (⅜") and compressive modulus 40 mm (1 ½")

²⁾ Half size plane sheets for thickness ≤ 8 mm (0.315")

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